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Improving The Diagnosing Dermatitis Parasitic Etiology Methods Of Carnivorous Animals.

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ABSTRACT

At the moment, parasitic animal dermatitis of animal etiology occupies a leading place among the diseases found in dogs and cats. The reasons for their occurrence are changes in the nature and composition of feed, environmental degradation of the environment, as well as limited mobility of small domestic animals in their habitats. These and many other factors in pets can cause, in addition to changes in the skin, impaired function of vital organs and systems, which can contribute to the progression of pathological processes and a decrease in immune status. With the increase in the number of small pets, the need for an increase in the number of veterinary clinics has grown. In clinical studies in hospitals, veterinarians detect irregularities in the form of systemic pathologies in various forms, hypovitaminosis; allergic reactions; inflammatory processes in the form of dermatitis caused by the presence of ectoparasites. When the pathological manifestations of mixed forms except ectoparasites, find a different microflora.

Keywords: dermatitis, dogs, cats, ticks, insects.

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INTRODUCTION

With the increase in the number of domestic carnivores in public and private veterinary clinics, practicing veterinarians are increasingly faced with diseases of the skin. Moreover, dermatitis of parasitic etiology range from 40 to 60% of the total number of incoming patients [1, 2]. Diseases with signs of skin lesions, according to statistics from veterinarians [3, 4], have a different etiology. Among the factors contributing to the development of dermatitis, researchers note: impaired immune status of animals, systemic pathologies in the form of hypothyroidism and hypercorticism, less often diabetes mellitus, hypovitaminosis, allergic reactions [5, 8], parasitism of various types of ticks (*Otodestes*, *Notoedres*, *Sarcopop*, *Demodex*) [6, 7] and insects (mallofagov, lice, fleas). With the pathological manifestations of mixed forms, pathogenic and conditionally pathogenic microflora play a significant role [7].

MATERIALS AND METHODS

The work was carried out in the conditions of veterinary clinics of the city of Stavropol in the admission and treatment of small domestic animals for the period from 2015 to 2018. 1032 animals were examined, among which 604 (28%) animals do not clinically show symptoms of disease. Among all pathologies, the share of dermatitis accounted for 212 cases, which accounted for 37% of the total population of the patients and 56% of the number of sick animals. The etiology of dermatitis diagnosed by us was the most diverse: arachnoses, dermatitis of allergic origin; dermatomycosis, dermatitis caused by bacterial microflora (*staphylococcus*), miliary dermatitis, infectious dermatitis (*leptospirosis*, plague of carnivorous), combined dermatitis.

Laboratory diagnostics currently occupies one of the leading places in clinical practice in making diagnosis in small domestic animals. In most cases, the appointment and proper conduct of the necessary treatment measures depend on timely and high-quality laboratory research [9-16].

For obtaining reliable results of laboratory diagnostics, the method and technique of taking the material (skin, scab, crusts, exudate) are essential. In order to confirm or exclude tick-borne and fungal etiology dermatitis, the biomaterial is collected by deep scraping of the skin with a bacterial needle or a dulled scalpel. Samples are taken at the border of the affected and healthy skin from 3-4 different areas of fresh lesions, grabbing hair and crusts (scabs). In some cases, the material is treated with a 10% aqueous KOH solution and subjected to microscopy.

At the end of the past and at the beginning of this century, the authors used well-known methods of diagnosing ectoparasitosis, both mortal and vital, which were often laborious, and the interpretation of the results was difficult. In the diagnosis of dermatitis of parasitic etiology, according to previously known techniques, aspects such as the detection of the lesion and ectoparasites with the specification of the type came to the fore. Such acarological studies did not always give a positive result, so the study with sampling was repeated, sometimes many times and with the expenditure of a large amount of time and effort.

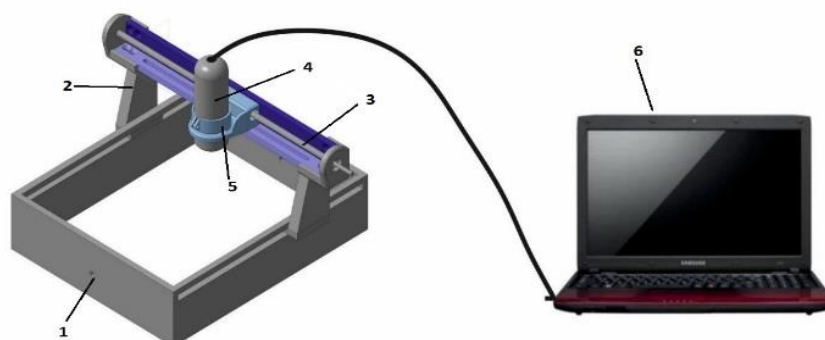


Figure 1: Equipment in the form of electron microscopic technology

To improve the quality of methods for diagnosing and differentiating the species belonging to ectoparasites, at present, rapid diagnostic methods are increasingly being used. Reportedly, the use of a rapid diagnostic method in animals is more preferable. Therefore, based on diagnostic information on the successful application of the express method on sheep (B.M. Bagamaev, 2012), we used the express method of diagnosis with differentiation in parasitizing ticks and insects on the surface of dogs and cats using modern electronic microscopic techniques (Figure 1).

The device for express diagnostics of ectoparasites in animals consists of a platform (1) on which a miniature portable microscope is fixed (2) for express diagnostics, connected to a personal portable computer (laptop) (3). At the fixed site view of a hollow rectangle; a movable panel is fixed, which makes it possible to displace the microscope with an ocular attachment and illuminator along the lesion, while the optical head of the microscope, the ocular attachment with illuminate Lem connected to a personal computer via USB-port with the ability to transfer data to it to differentiate ectoparasite.

The use of this portable mobile set of equipment on the body of an animal in the lesion on the surface of the skin allows the diagnosis of arachnosis in carnivores kept at home. The studies were conducted in the medical diagnostic center of the Stavropol State Agrarian University and the veterinary clinics of the city of Stavropol.

RESULTS AND DISCUSSION

In small domestic animals, diseases with signs of skin lesions occur in acute, more often - chronic forms. Depending on the localization, the areas of the affected skin can be in the form of lesions on certain parts of the body, and when capturing large parts of the skin, a generalized form develops. The nature of the pathological processes of the skin is expressed by a significant variety of clinical signs that can appear in the initial stage in the form of small inflammatory foci, and later in the form of pustules, scales, effusion exudate, in some cases there are extensive centers of baldness (alopecia).

Diseases of the skin occur with the appearance of visible changes in the condition of the hair. In most cases, the hair is dry, poorly fitting, without luster (dull), often cracked at the base of the hair bulb, creating the appearance of a short-cropped (chopped). Subsequently, small hairless areas are often traced, usually round or oval in shape, covered with scales or crusts from asbestos gray or grayish yellow to dark brown, which gradually take the form of a shield with raised edges. Under crusts (scabs), when the immunity of the animal's body is weakened, as a rule, the formation and accumulation of purulent exudate occurs, which is accompanied by the appearance of an unpleasant or ichorous smell. During long-term inflammatory processes, the skin thickens, folding appears, and small and multiple foci of alopecia merge, subsequently seizing large areas of the animal's body. Foci of damage to the bowl are found on the areas of the neck, torso, abdomen, in the axillary and inguinal region, in more severe conditions they may even be located on the extremities (interdigital space). Most often, depending on the type of ectoparasite, the scalp, neck, torso and internal surfaces of the abdomen are affected. Depending on the severity of the lesion, the reaction of the skin can occur with varying intensity: from lungs to chronic and even generalized exudative processes. Moreover, itching in most cases may be noticeable and debilitating, and in some cases it is mild or absent.

Thus, with a number of ectoparasites, a clinically proposed method of rapid diagnosis allows, in the final analysis, differential diagnosis. In this regard, to select the right strategy for remedial measures, we conducted research, the purpose of which was: to make a diagnosis, confirm its validity, identify the factors causing the development of the pathological process and determine the overall clinical status of the animal.

The effectiveness of therapeutic measures for dermatitis in general depends on the correct and timely diagnosis and therapeutic care. Methods of clinical examination do not always allow to determine the initial cause of the onset and development of the disease, since the clinical signs of dermatitis in most cases are very similar. This all determines the feasibility of using various special or additional laboratory research methods, which ultimately make it possible to carry out differential diagnostics.

Changes in hematological and biochemical parameters, as a rule, are not specific for skin diseases in animals.

In some dogs and cats, several factors were simultaneously noted that cause damage to the skin and hair. Clinical signs of associative forms of dermatitis were characterized by a deeper lesion, the presence of exudative processes with the subsequent formation of dense scabs (scabs) on the affected areas, severe itching, anxiety of the animal and the duration of recovery.

CONCLUSION

Used portable set of equipment for rapid diagnosis is easy, mobile, allows real-time diagnostics with the detection of ectoparasites on the skin, followed by differentiation to clarify the type.

This method allows you to assess and make objective proposals on the differentiation of lesions of the skin of parasitic origin; then, relying on the illustrative material, identify the causative agent of ectoparasites with clarification of the parasite type, take photographs of the image of the affected area of the skin, and even reproduce the presentation of the pathological focus and subsequently issue an opinion as soon as possible in the field.

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